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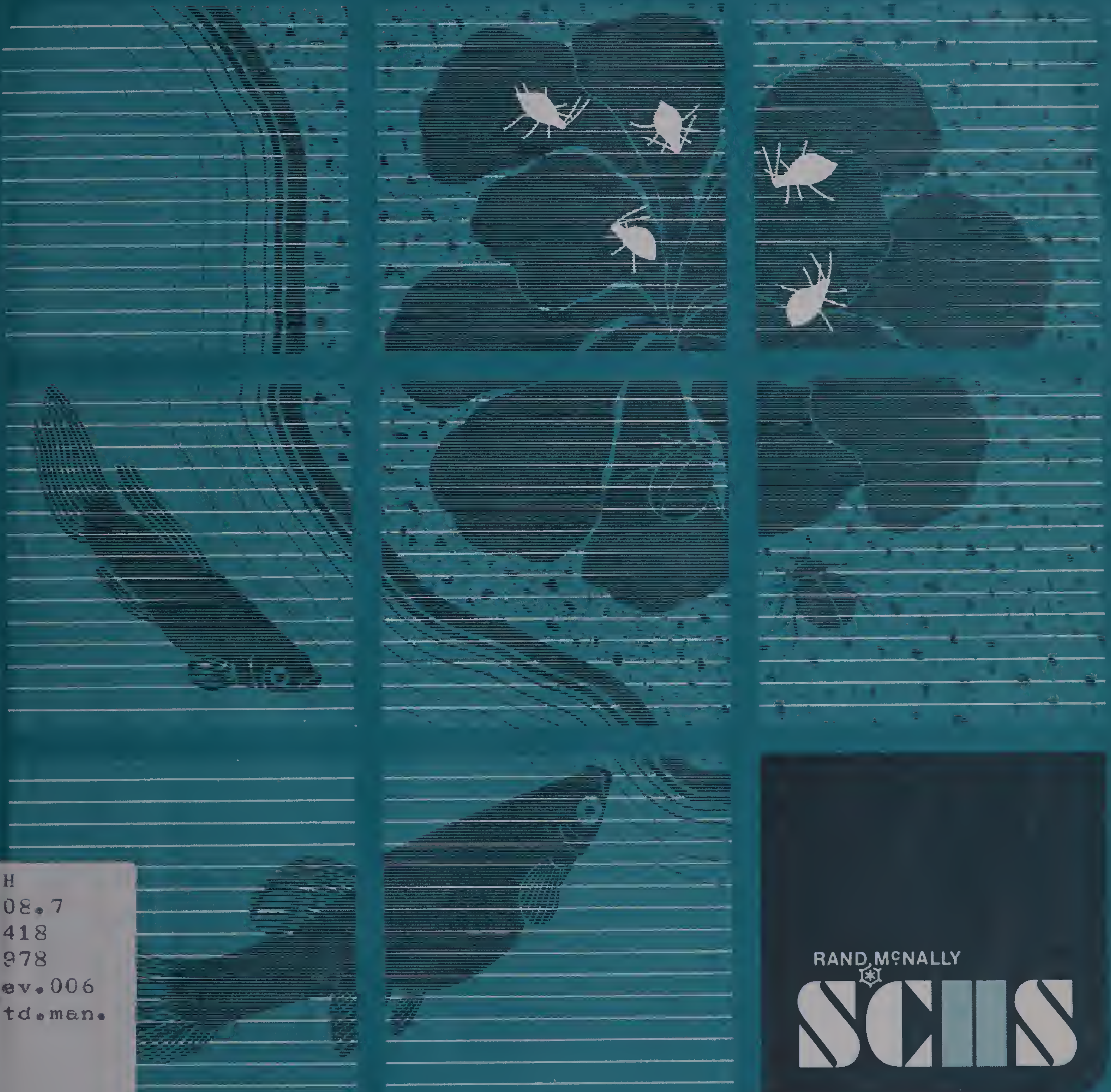
Ecosystems



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RAND McNALLY
SCIIS

name ____________________

Describe your team's
aquarium-terrarium system.
Include in your description the kinds
and numbers of seeds that were planted.
How much moisture is in your system?

Describe the place where you put your system.
What is the temperature there?
How much light does the system get?
Explain why you decided to put your system there.

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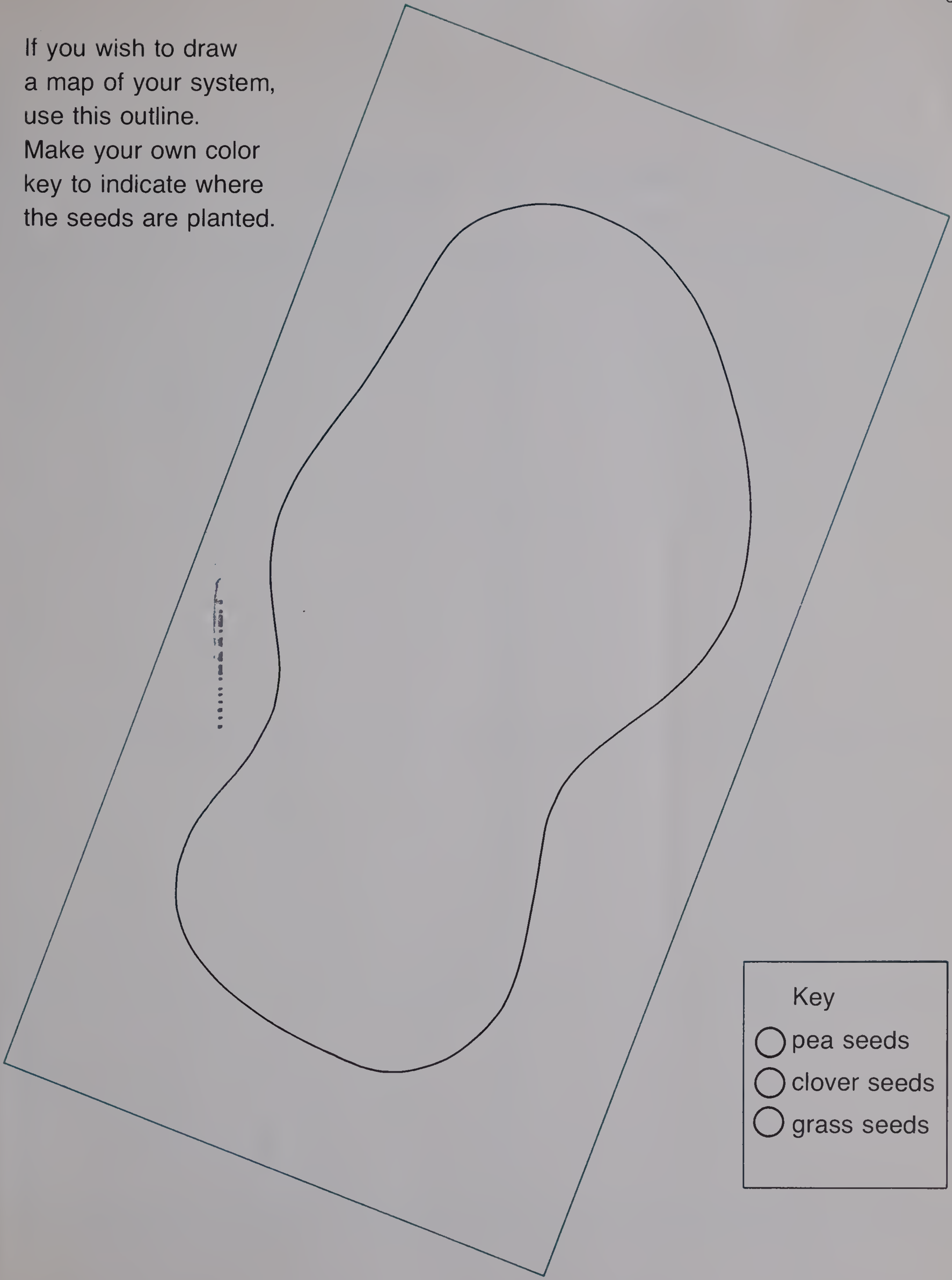
If you wish to draw
a map of your system,
use this outline.
Make your own color
key to indicate where
the seeds are planted.



Key

○ pea seeds

○ clover seeds

○ grass seeds

Date ____________________

Name of organism	Drawing or description	How many?	What do they eat?

Date ______________________

Name of organism	Drawing or description	How many?	What do they eat?

Date ____________________

Have any of the populations in your team's system increased or decreased?

Population	Possible reason for the increase or decrease

Which population in your system is the largest? ____________________

Which population is the smallest? ____________________

Think of populations that live in your neighborhood.
Record their names in the sections where you think they belong.
Draw arrows to show which organism is food for another.

Describe changes you have observed in your system.
What environmental factors may have caused these changes?

Date	Change	Possible cause

Date	Change	Possible cause

What changes in your system do you have questions about?

What could be a possible source of moisture in your system?

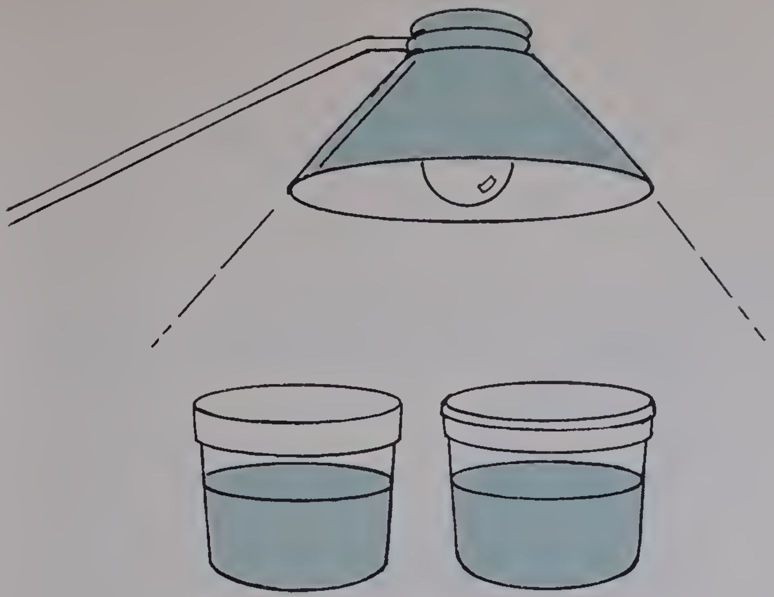
Draw or describe how you will test your idea.

What did you find out?

Observe all the experimental results and use evidence to answer these questions:

What objects produced the most moisture?

What objects produced the least moisture?



Predict what will happen
near the light–

in the open tumbler ______________________

____

____

in the capped tumbler ____________________

____

____

Results

in the open tumbler ______________________

____

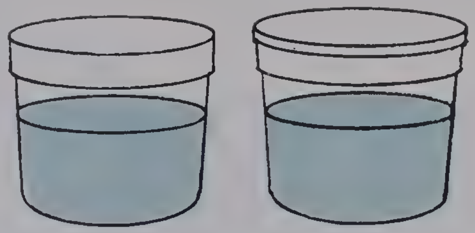
____

in the capped tumbler ____________________

____

____

Temperature



Predict what will happen
far from the light–

in the open tumbler ______________________

____

____

in the capped tumbler ____________________

____

____

Results

in the open tumbler ______________________

____

____

in the capped tumbler ____________________

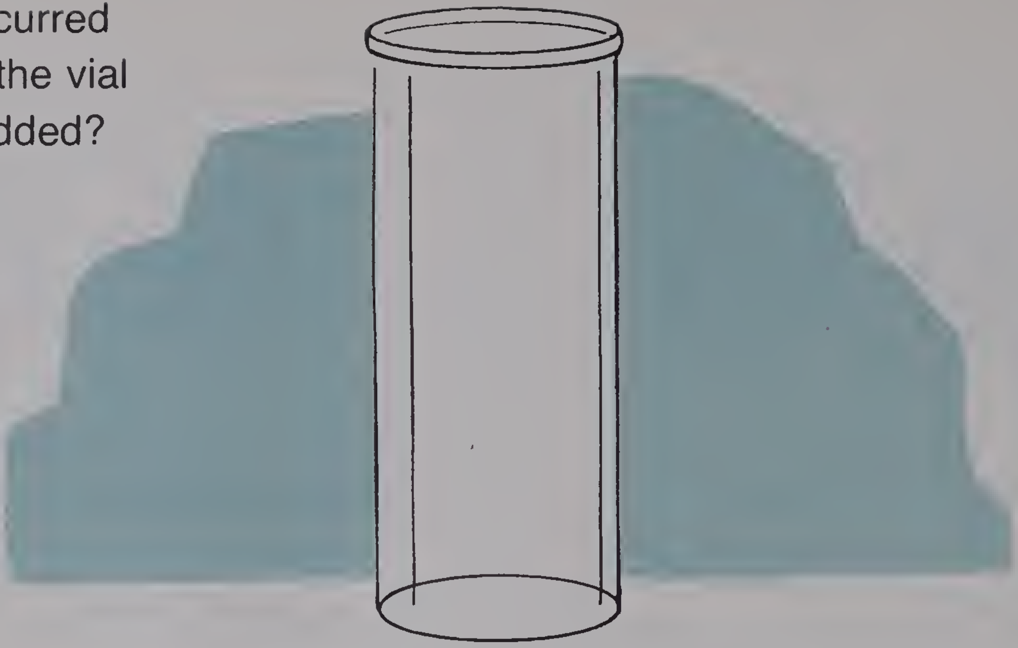
____

____

Temperature

Date ____________________

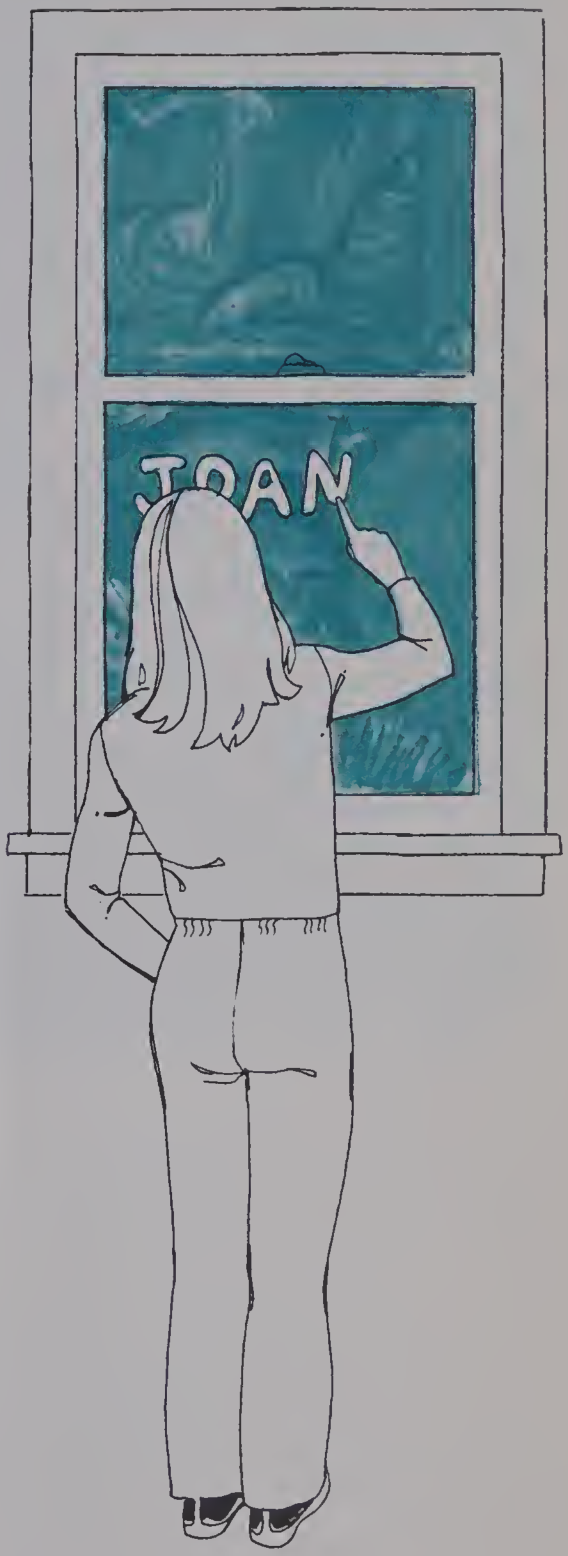
What changes occurred on the outside of the vial after water was added?



What do you think caused these changes? ____________________

Brain Teaser

One day Mrs. Grant's class noticed moisture on the inside of the classroom windows. Where did the moisture come from?

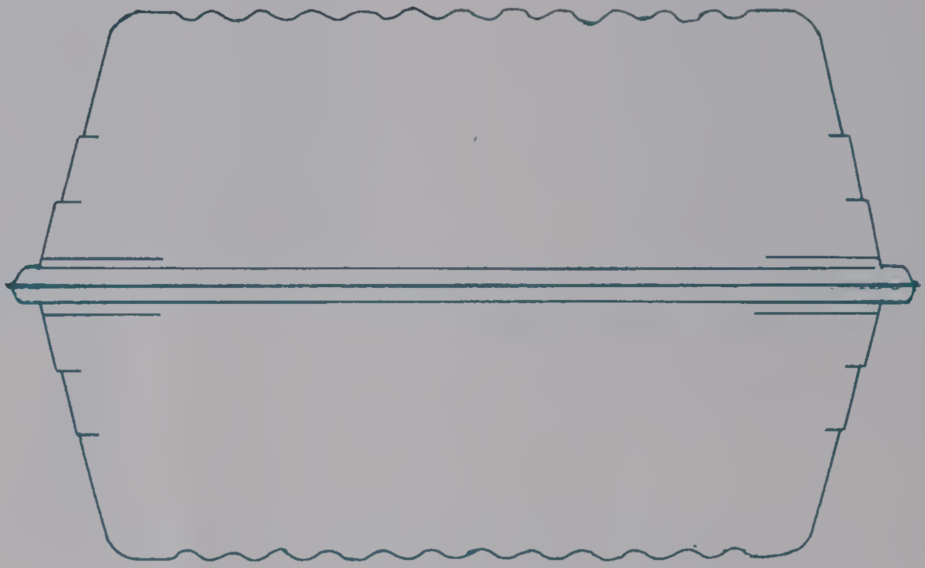


Do you think the temperature outside the classroom was higher or lower than the temperature inside?

The students also noticed there was no moisture on the classroom walls. Why do you think the moisture was on the windows and not on the walls?

Set up your equipment so that water condenses at one end.

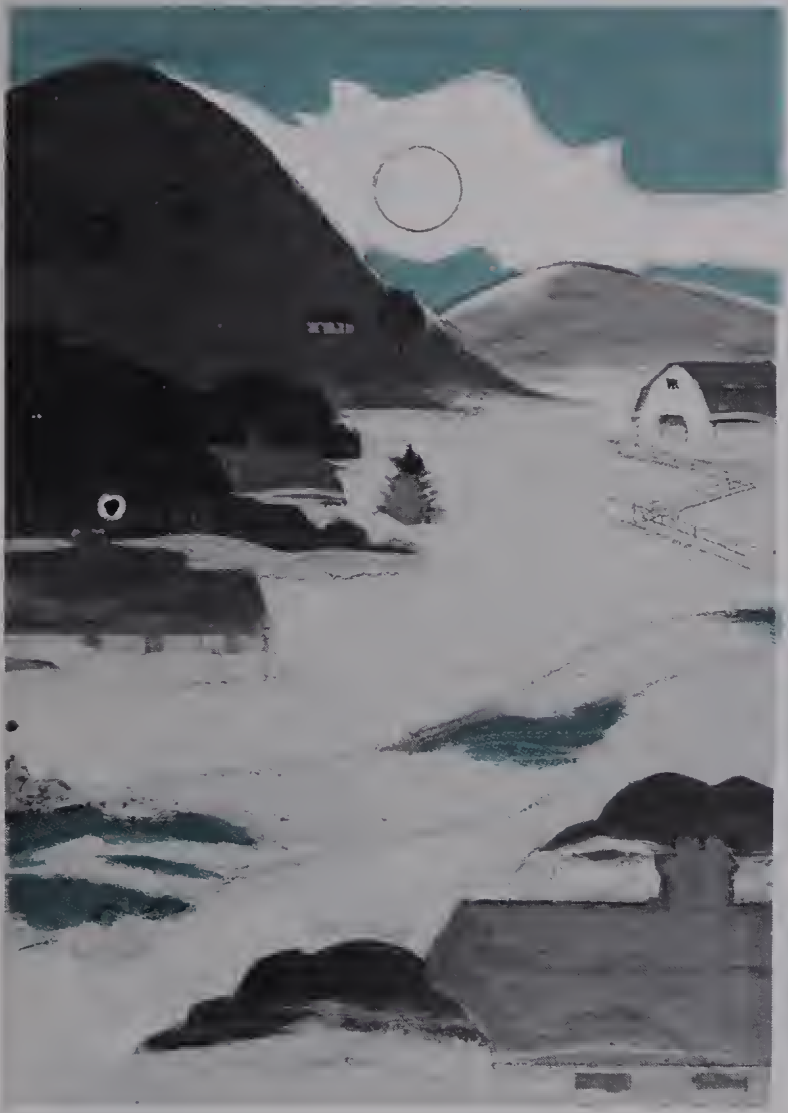
Draw the positions of the lamp, cup, and any other materials you use.



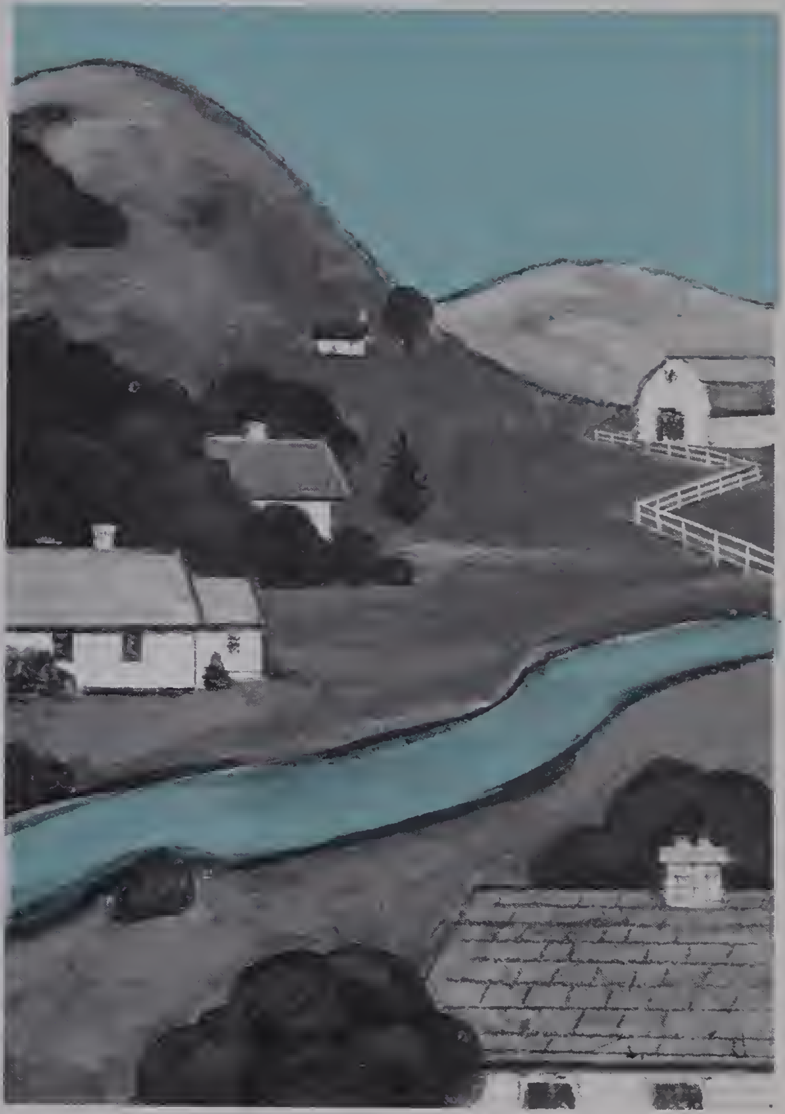
Describe what happened. What do you think caused the result?

Brain Teaser

8:00 A.M.



12:00 Noon



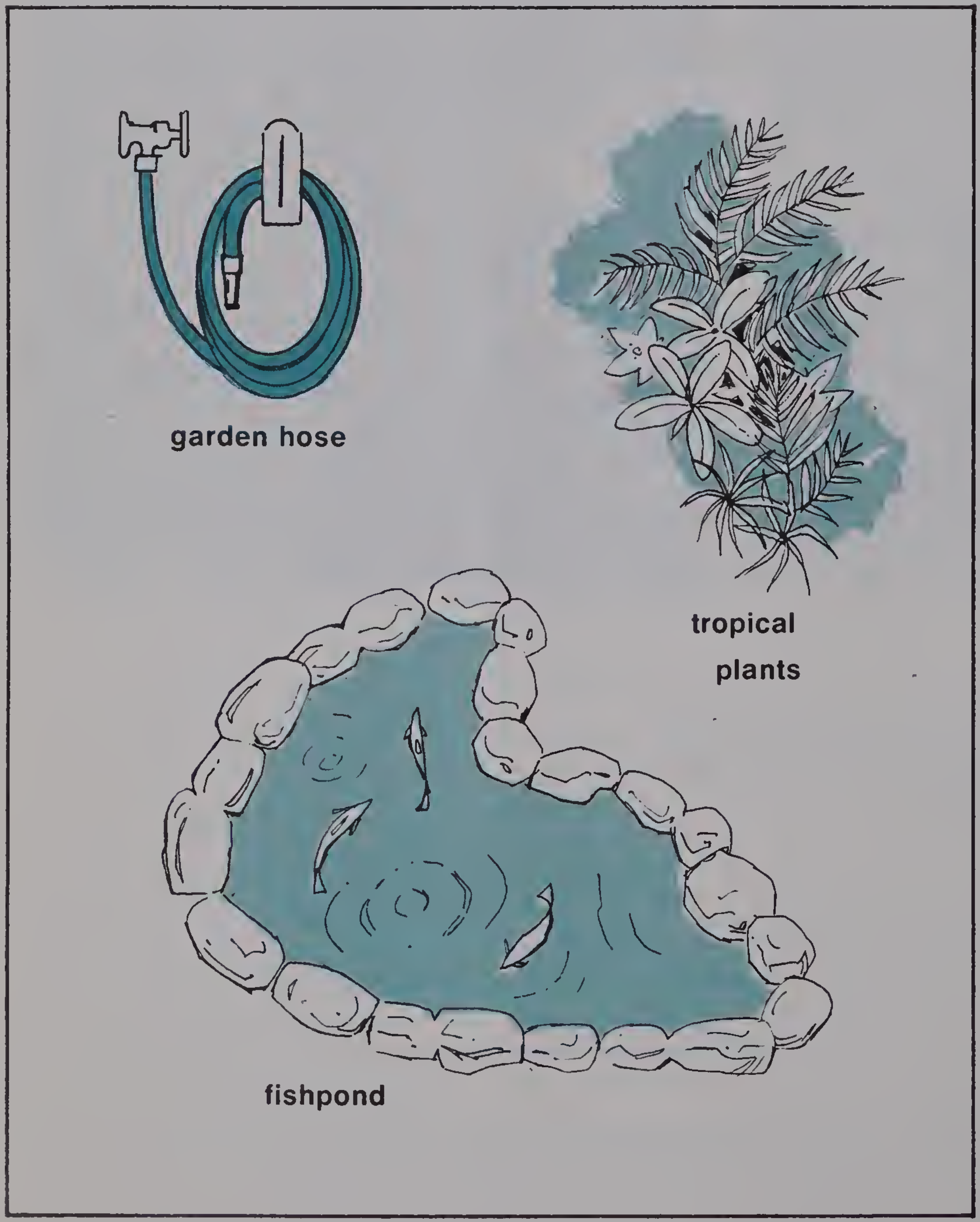
Early morning fog often disappears before noon.
Why do you think this happens?

Brain Teaser

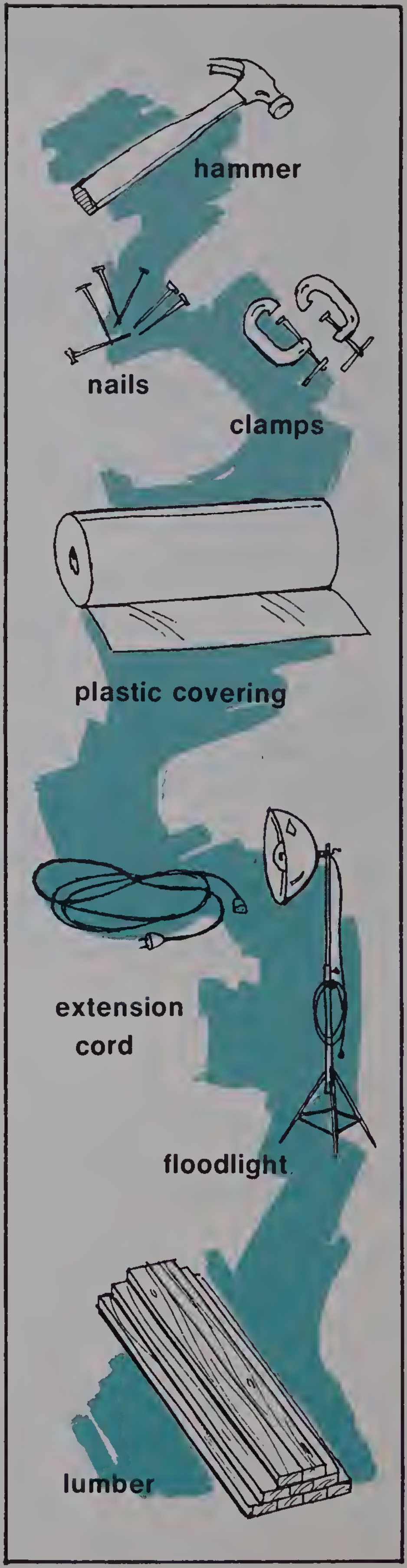
Doc Gregory raises tropical plants as a hobby. These plants require a constant supply of moisture, but they will die if they are over-watered.

Doc Gregory will have to leave her greenhouse for two weeks while she attends a convention. There is no one to water the plants for her.

Greenhouse



Shed



In the space below, draw and describe how Doc Gregory could use the materials she has available to insure that the plants will get the moisture they need while she is away.

What changes did you observe in the BTB solution after it stood overnight?

What might have caused this to happen?

Plan an experiment to test your ideas.
Draw or describe your experiment.

What were your results?

Brain Teaser

Rita and Tony added carbon dioxide to blue BTB solutions. After they looked at the solutions the next day, they disagreed about what caused the yellow solutions to turn back to blue. Tony thought that oxygen or air entered the liquid. Rita said that the carbon dioxide left the solution.

To settle their disagreement, they set up a soda water experiment and predicted the colors of both solutions at the end of the experiment.

What do you think Tony would predict? ____________________________

____

____

What do you think Rita would predict? ____________________________

____

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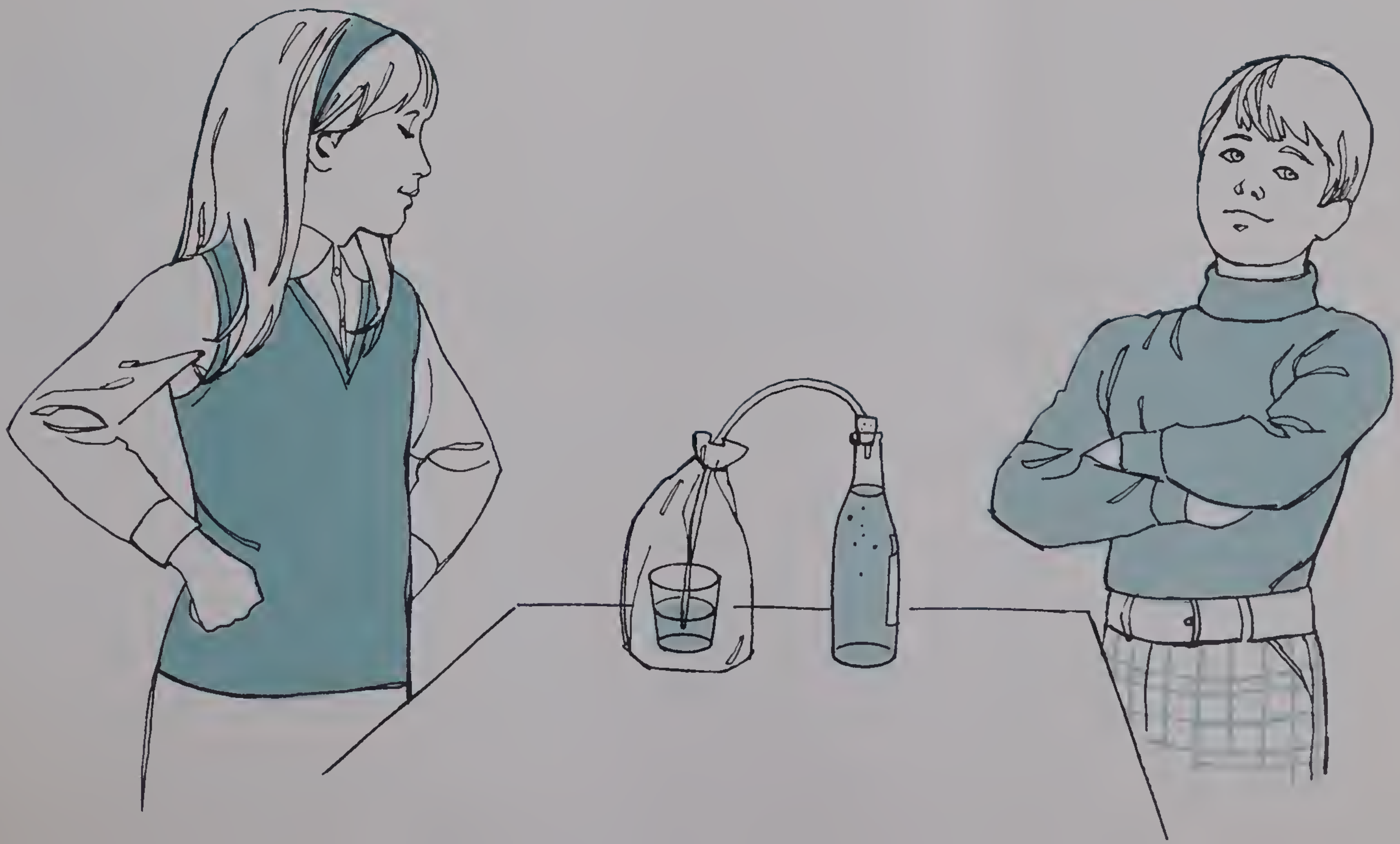
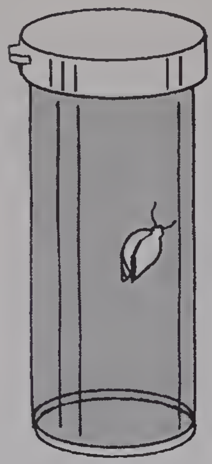


Experimental

Original color of the solution

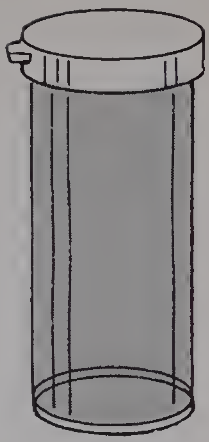
____



Control

Original color of the solution

____



Predict the color of the solution in each vial after one day.

A ______________ **B** ______________

Why did you predict these colors?

____

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What was the color of the solution in each vial after the experiment? ______________________________

If the color of each solution was not what you predicted, what do you think happened?

____

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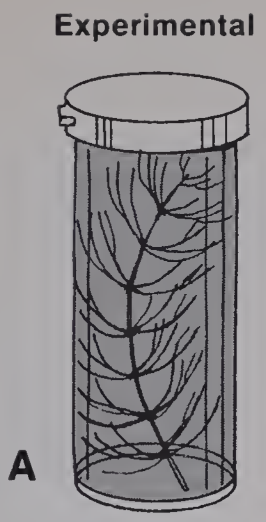
Original color of the solution

____



Original color of the solution

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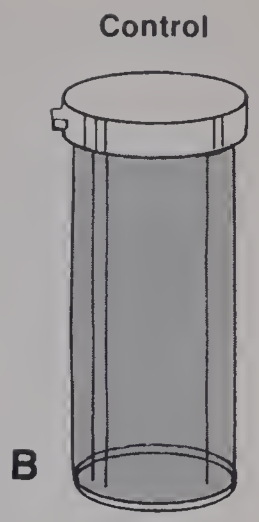

Predict the color of the solution in each vial after one day.

A ______________________ B ______________________

Why did you predict these colors?

____

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____

What was the color of the solution in each vial after the experiment? ______________________________

If the color of each solution was not what you predicted, what do you think happened?

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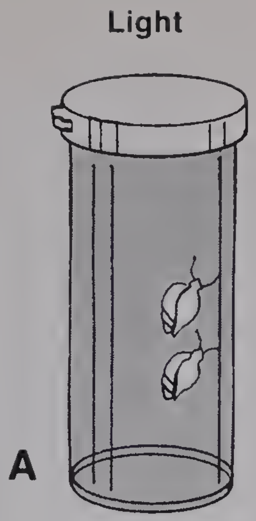
Brain Teaser

Tom and Debbie tried an experiment. They put a cricket in a jar and added a vial filled with blue BTB solution. Then they capped the jar. The next day they looked at the experiment.

Do you think the BTB stayed blue or that it changed color? Explain.

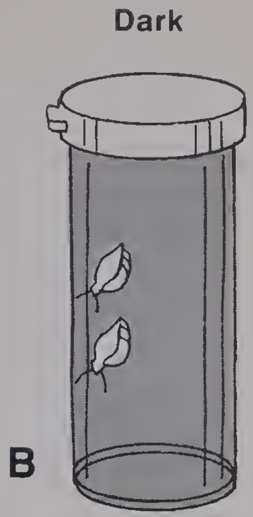
Original color of the solution

____



Original color of the solution

____



Predict the color of the solution in each vial after one day.

A ______________________ **B** ______________________

Why did you predict these colors?

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What was the color of the solution in each vial after the experiment?

If the color of each solution was not what you predicted, what do you think happened?

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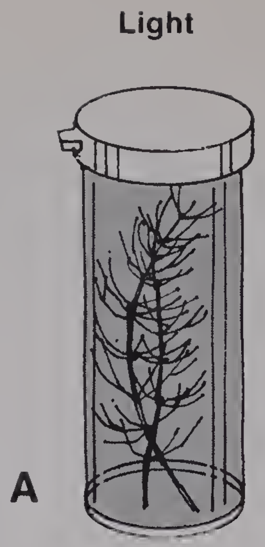
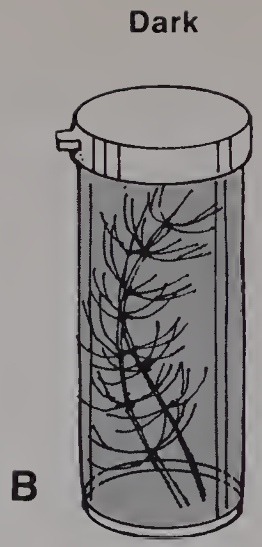
Original color of the solution

____



Original color of the solution

____



Predict the color of the solution in each vial after one day.

A ____________________

B ____________________

Why did you predict these colors?

____

____

____

____

What was the color of the solution in each vial after the experiment? ____

If the color of each solution was not what you predicted, what do you think happened?

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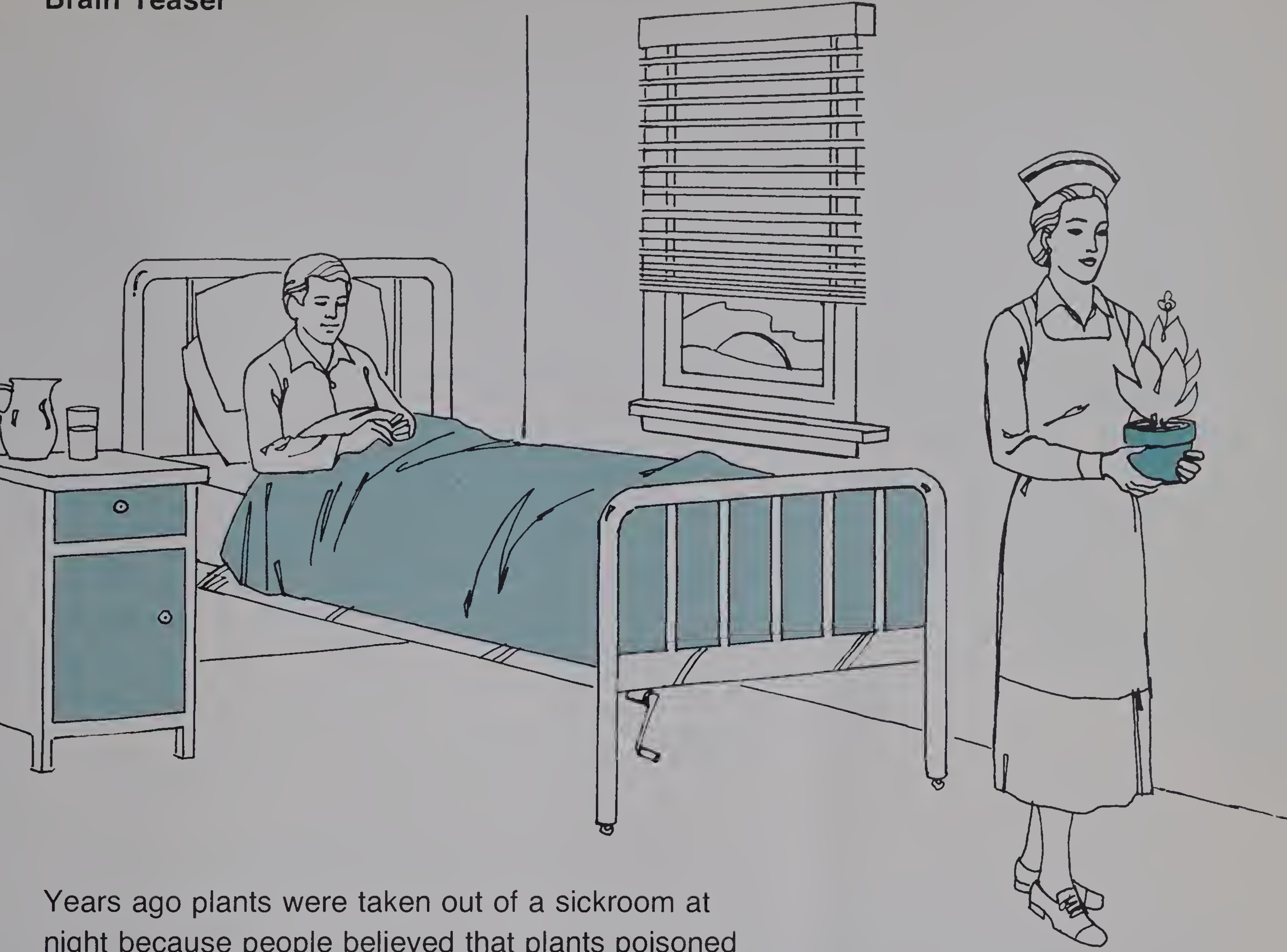
Brain Teaser

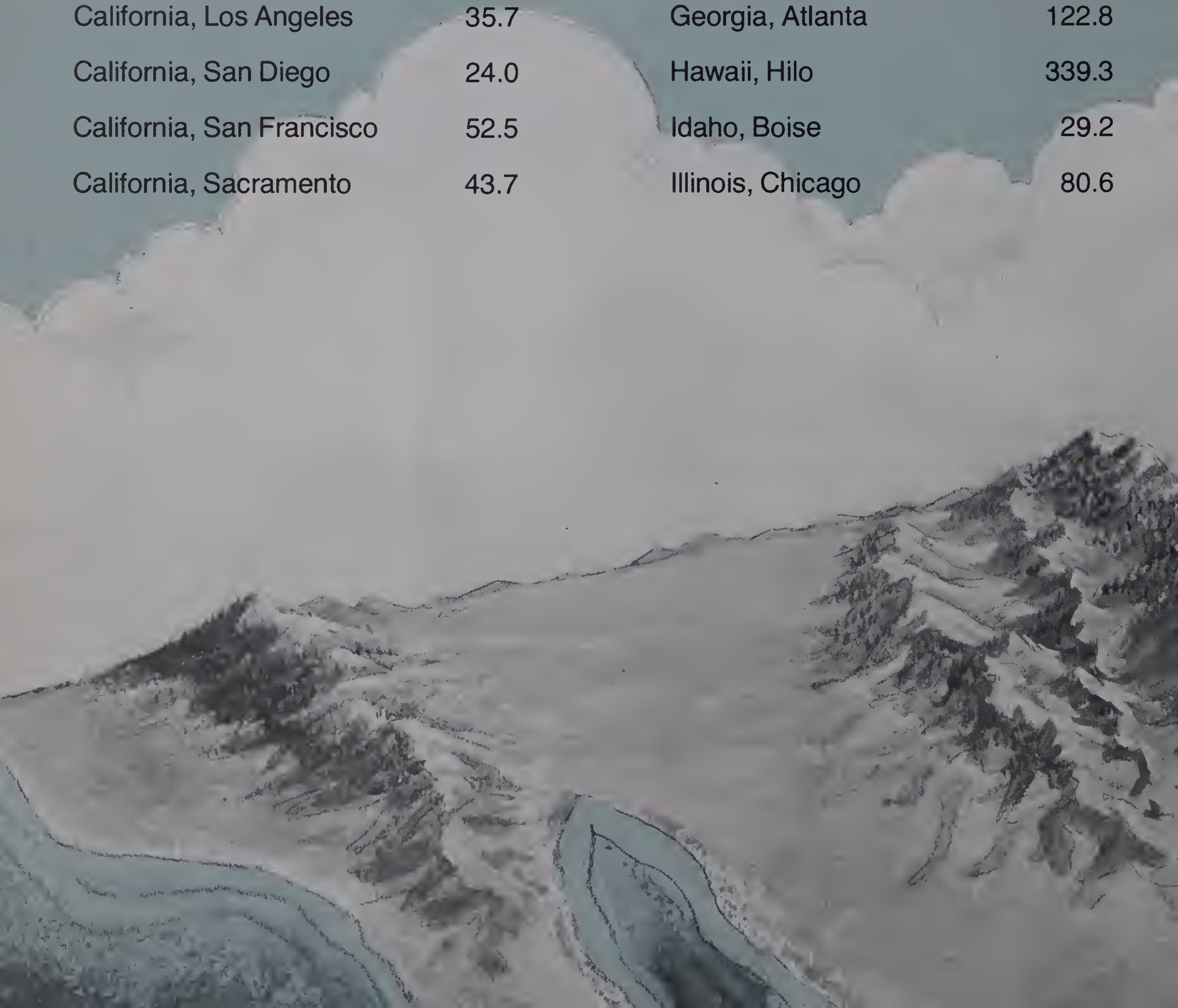


Years ago plants were taken out of a sickroom at night because people believed that plants poisoned the air after dark.

What do you know about plants that might have caused this belief?

Normal Annual Precipitation in Centimeters

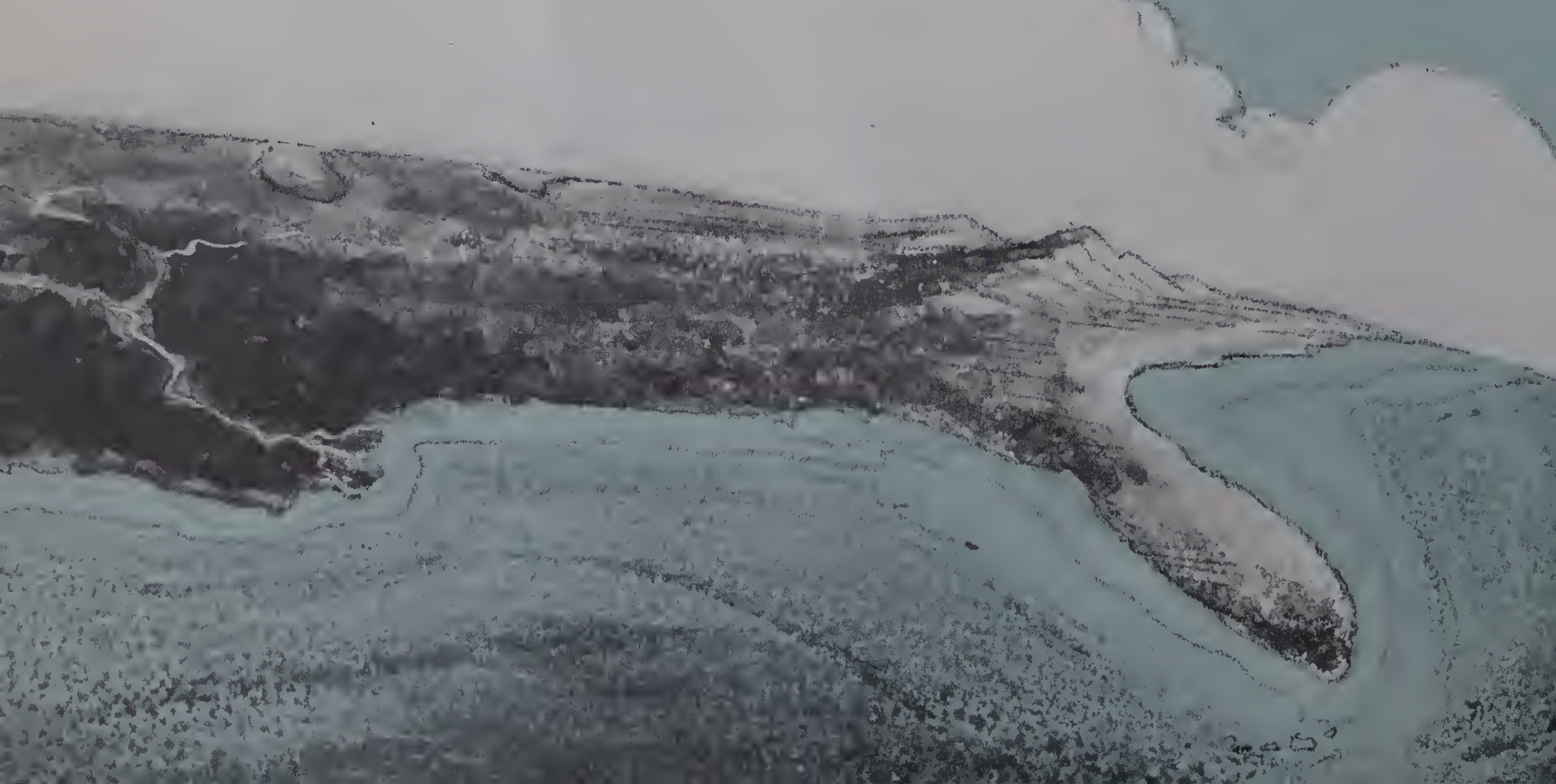
Alabama, Birmingham	135.2	California, Mt. Shasta	95.2
Alaska, Fairbanks	28.5	Colorado, Denver	39.4
Alberta, Edmonton	44.0	Connecticut, Hartford	110.2
Arizona, Phoenix	17.9	Delaware, Wilmington	117.5
Arkansas, Little Rock	123.2	Florida, Orlando	130.1
British Columbia, Vancouver	149.0	Florida, Miami	151.9
California, Los Angeles	35.7	Georgia, Atlanta	122.8
California, San Diego	24.0	Hawaii, Hilo	339.3
California, San Francisco	52.5	Idaho, Boise	29.2
California, Sacramento	43.7	Illinois, Chicago	80.6



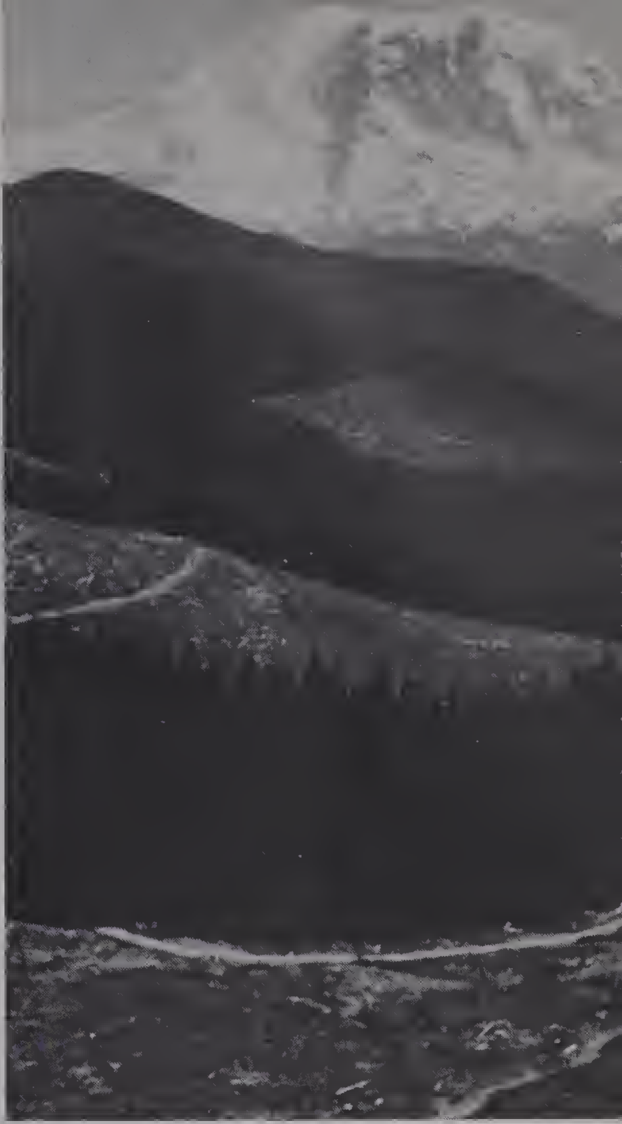
Indiana, Indianapolis	98.4
Iowa, Des Moines	78.4
Kansas, Wichita	77.7
Kentucky, Louisville	109.5
Louisiana, Baton Rouge	137.3
Maine, Portland	103.6
Manitoba, Winnipeg	51.6
Maryland, Baltimore	102.8
Massachusetts, Boston	108.0
Michigan, Lansing	77.2
Minnesota, Minneapolis	65.9
Mississippi, Jackson	124.9
Missouri, Columbia	95.0
Montana, Helena	28.9
Nebraska, Lincoln	67.7
Nevada, Reno	18.3
New Hampshire, Concord	91.9
New Jersey, Newark	105.3
New Mexico, Albuquerque	19.7
New York, New York	102.1

North Carolina, Raleigh	108.1
North Dakota, Bismarck	41.0
Ohio, Columbus	94.0
Oklahoma, Oklahoma City	79.7
Ontario, Toronto	81.8
Oregon, Eugene	108.1
Oregon, Burns	30.0
Pennsylvania, Harrisburg	92.6
Quebec, Montreal	103.3
Rhode Island, Providence	108.6
South Carolina, Columbia	117.8
South Dakota, Rapid City	43.5
Tennessee, Nashville	116.8
Texas, Austin	82.5
Texas, El Paso	19.7
Utah, Salt Lake City	38.5
Vermont, Burlington	82.7
Virginia, Richmond	108.2
Washington, Seattle	90.6
Washington, Yakima	20.3
Puerto Rico, San Juan	150.2
West Virginia, Parkersburg	97.6
Wisconsin, Milwaukee	73.8
Wyoming, Lander	35.2

Most of the information above was furnished by the National Oceanic and Atmospheric Administration (NOAA).

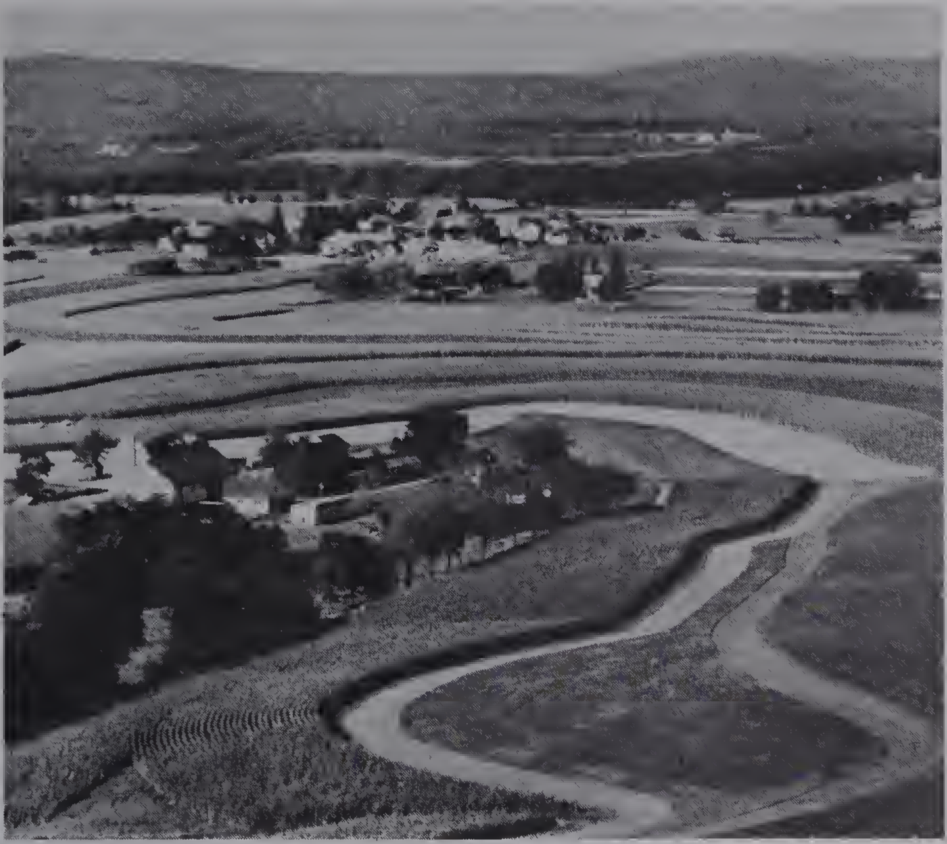


Look at the pictures on this page and on page 30. In what ecosystem do you think each picture was taken? What changes in the original ecosystem have been made by humans?



1.

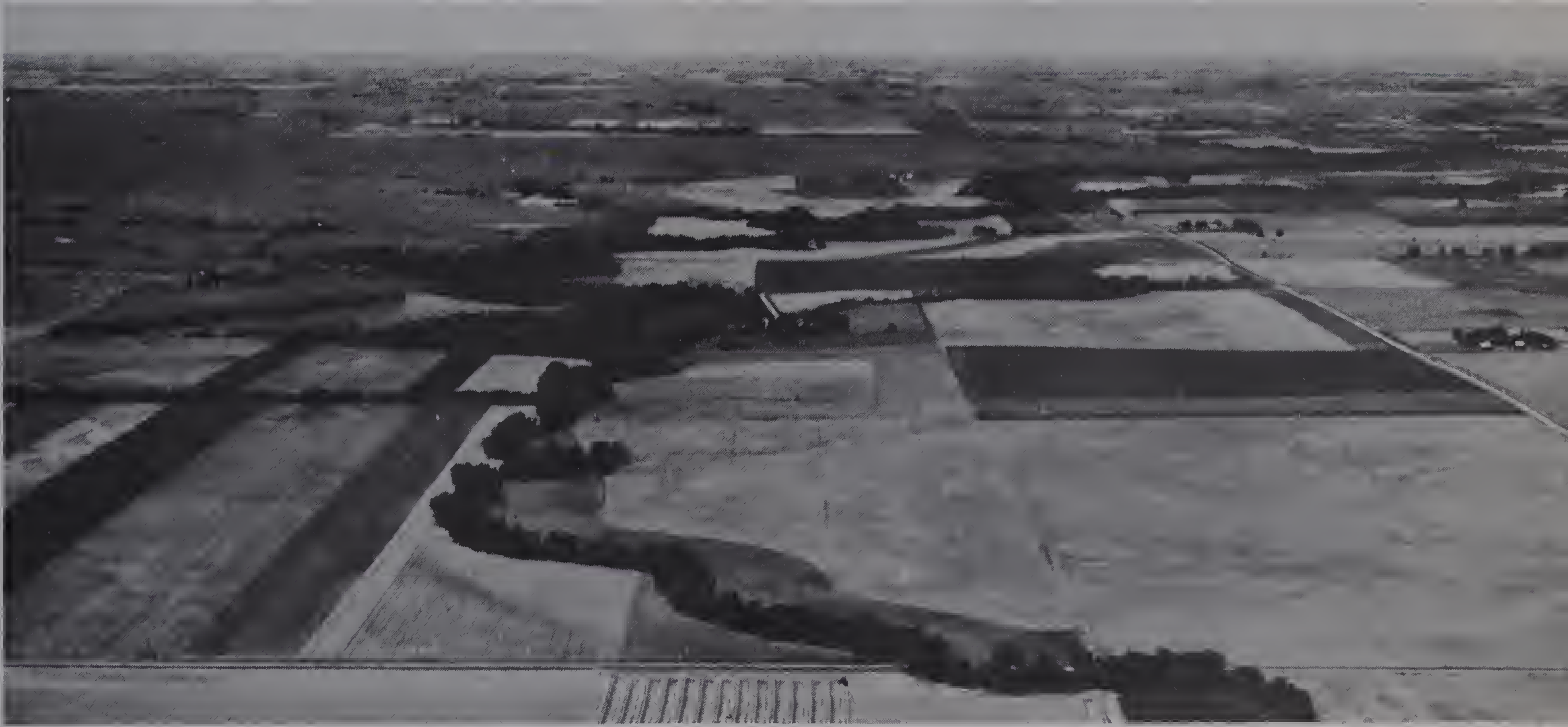
Weyerhauser Co.



2.

Grant Heilman

3.



Grant Heilman

4.

Grant Heilman

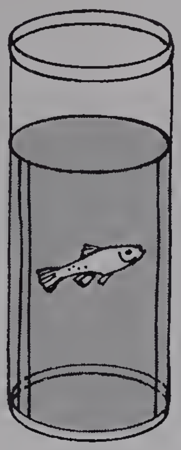
TVA

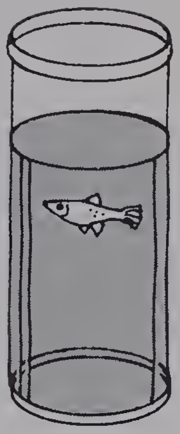
5.

6.

Standard Oil of N.J.

Describe the behavior of the fish in your team's vials.





Vial with carbon dioxide gas

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Control vial

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Add two drops of BTB to the liquid
in both vials. Record the resulting colors.

Vial with carbon dioxide gas

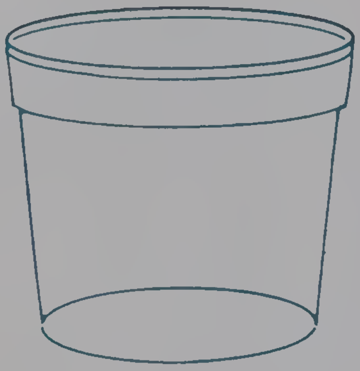
____

Control vial

____

Draw the contents of your team's five cups.
Record how much food is in each cup.

A



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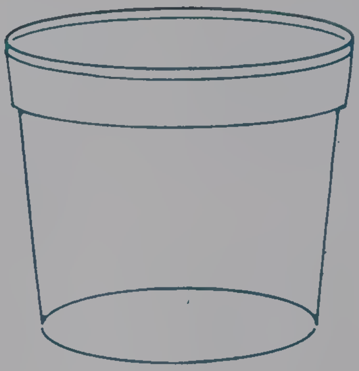
B



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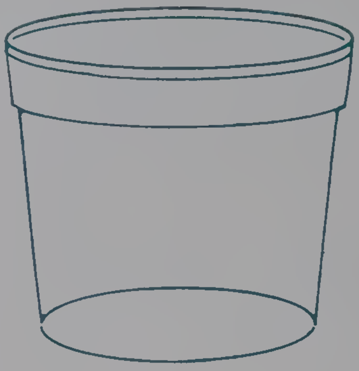
C



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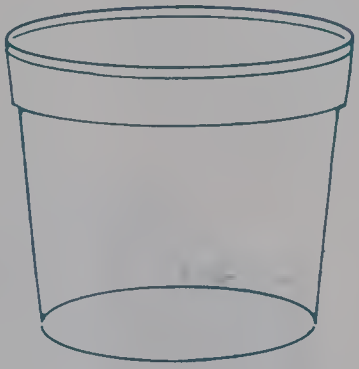
D



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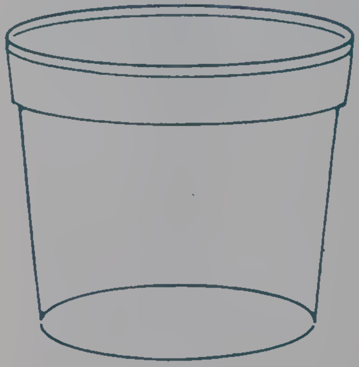
E



____

Use BTB to test some liquid from each cup.
How did the liquid look and smell?

	How did the liquid look and smell?	What was its color?
A	______________	______________
B	______________	______________
C	______________	______________
D	______________	______________
E	______________	______________

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